

Patent claims

1. A thin film piezoelectric resonator having a piezoelectric layer (6) between a lower electrode layer (5) and an upper electrode layer (7), in which in the upper electrode layer (7) or in an additional layer (8) applied thereto a structure is present, and in which the structure is made so that because of the change in medium density of a respective layer (7;8) a prescribed resonant frequency is set.
2. A thin film piezoelectric resonator as claimed in claim 1, characterized in that an additional layer (8) is present on the upper electrode layer (7), and a structure is present in the additional layer (8).
3. The thin film piezoelectric resonator as claimed in claim 1 or 2, in which the structure comprises holes (10), and in which the spacing between each one of these holes and the hole closest thereto is smaller than a wavelength provided for operating the resonator.
4. The thin film piezoelectric resonator as claimed in claim 2, in which the structure comprises islands (10) and in which the spacing between each one of these islands and the island closest thereto is smaller than a wavelength provided for operating the resonator.
5. The thin film piezoelectric resonator as claimed in one of claims 1 to 4, in which the structure is so irregular that defraction phenomena are avoided.
6. The thin film piezoelectric resonator as claimed in one of claims 1 to 5, in which the piezoelectric layer (6) is a material from the group of AlN, ZnO and PZT ceramic in which

the piezoelectric layer (6) and the electrode layers (5, 7) are arranged on a carrier film (2) made from polysilicon, and in which a cavity (4) is present on the side of this carrier film averted from the lower electrode layer (5).

7. An arrangement of a plurality of thin film piezoelectric resonators as claimed in each one of claims 1 to 6, in which the resonators are arranged on the same chip, and in which the resonators are set to at least three different resonant frequencies.